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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,300	02/18/2004	Peter Satitpunwaycha	AMAT/8403/MASK/MASK-ETCH	4286

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EXAMINER

DHINGRA, RAKESH KUMAR

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/782,300	SATITPUNWAYCHA ET AL.	
	Examiner	Art Unit	
	Rakesh K. Dhingra	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/04, 09/04</u> . | 6) <input checked="" type="checkbox"/> Other: <u>More IDS - 05/05</u> . |

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Figure 1- "capture ring 216" (it should read "cover ring 216 – please see remarks under specification below) is not shown in the drawing, as mentioned in Paragraph 0026, line 9 of the specification.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

1) Paragraph 0022, line 5 – it is suggested to fix the sentence "substrate 222 ----- and the handler blade 300" since as per Figure 1, substrate 222 is not shown positioned on the substrate support member 200;

2) Paragraph 0026, line 9 – it is suggested to replace “capture ring 216” with “cover ring 216”;

3) Paragraph 0032, lines 9, 10 – it is suggested to verify “base plate 202” since as per line 2 in the same paragraph reference number “202” is referred to as “outer diameter 202”;

4) Paragraph 0041, line 5 – it is suggested to correct “pedestal 300’ ” to “pedestal 300” “;

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5, 6, 8, 10, 12-15, 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US Patent No. 5,688,358) in view of Satoh et al (US PG PUB No. 2002/0162630).

Regarding Claim 1-3: Tanaka et al teach a pedestal 10 (Figure 6), for supporting a wafer (substrate) 12 in a plasma etching chamber 14 comprising:

a body (comprising of conductive platen [body] 48, outer ring 54 and top ring 52), the conductive platen (part of body) 48 being configured to receive an RF power; and a substrate support base (comprising of top raised portion in the conductive platen and the top ring 52) along an upper surface of the body, the substrate support base having an outer edge (outer perimeter of top ring 52), and an intermediate substrate support; and wherein the top ring (at least a portion of the substrate support base outside of the intermediate substrate support portion) 52 is fabricated from quartz (dielectric material) [Column 5, lines 35-60 and Column 4, lines 20-55]. Tanaka et al also teach that conductive platen 48 (includes substrate support portion) is made of metal (aluminum/titanium) [Column 2, lines 65-67].

Tanaka et al do not teach intermediate substrate support ridge for receiving and supporting the substrate.

Satoh et al teach an apparatus (Figure1) that includes a ceramic base substance (substrate support base) 13 that has a slanting surface (like a ridge) for receiving and supporting a substrate 9 (Paragraphs 0030-0032).

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Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use substrate support base with a slant surface (ridge) as taught by Satoh et al in the apparatus of Tanaka et al to avoid warping of substrate (Paragraph 0009).

Regarding Claims 5, 8, 12, 17: Tanaka et al teach that top ring 52 is made from quartz (a ceramic material).

Regarding Claims 6, 14, 19: Tanaka et al teach (Figure 6) that top ring 52 defines substantially the entire thickness of the substrate support base outside of the substrate support ridge.

Regarding Claims 10, 13: Tanaka et al in view of Satoh et al teach all limitations of the claim as explained above including that the apparatus can perform etching on semiconductor wafer. Use of apparatus for supporting a reticle (instead of semiconductor substrate) is an intended use for which courts (Case law) have held as follows:

“Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims. *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).”

Regarding Claims 15, 18: Tanaka et al in view of Satoh et al teach all limitations of the claim as explained above including that the apparatus (Figure 6, Tanaka et al) comprises chamber body that includes side wall 26, base 28 and a dome 30 and a substrate (reticle) support member 10. Further, Satoh et al also teach that apparatus (Figure 1) includes a gate valve (gate) 18 for entry/exit of wafer from the chamber 2 (Satoh et al – Paragraph 0031).

Claims 4, 7, 11, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US Patent No. 5,688,358) in view of Satoh et al (US PGPub No. 2002/0162630) as applied to Claims 3, 6, 15 and further in view of and Martin (US patent No. 4,676,193).

Regarding Claims 4,7,11,16: Tanaka et al in view of Satoh et al teach all limitations of the claims except material for substrate support ridge.

Martin teaches an apparatus (Figures 1, 2) that includes a mask (reticle) supporting frame 34 that has a flange 36 with a ridge 38 on which mask (reticle) 40 is supported.

Martin further teaches that frame (including ridge) 40 is made of stainless steel (Column 7, line 55 to Column 8, line 60).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a metallic ridge for supporting substrate as taught by Martin in the apparatus of Tanaka et al to minimize generation of particles due to reticle contacting only a small edge (ridge).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US Patent No. 5,688,358) in view of Satoh et al (US PGPub No. 2002/0162630) as applied to Claim 1 and further in view of Uchino et al (EP Pub. No. EP 1115140).

Regarding Claim 9: Tanaka et al in view of Satoh et al teach all limitations of the claim except cover.

Uchino et al teach an apparatus (Figure 1) that includes a substrate holder 120 that has a cover 150 that covers outer periphery of substrate holder 120 (Paragraphs 0023, 0024).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use substrate holder cover as taught by Uchino et al in the apparatus of Tanaka et al in view of Satoh et al to prevent deposition on the substrate holder.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Kisaichi et al (US Patent No. 6,921,457) teach an apparatus (Figure 1) that includes an electrode 12, and a susceptor 28 with tapered a recess 28a into which the wafer 14 is placed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rakesh K. Dhingra whose telephone number is (571)-272-5959. The examiner can normally be reached on 8:30 -6:00 (Monday - Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571)-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rakesh Dhingra



Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763